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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/083,353 | 02/27/2002 | Ken Yoshioka | 503.38156VX1 | 1842 |
| 20457 | 7590 | 04/15/2005 | EXAMINER | |
| ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873 | | | MOORE, KARLA A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1763 | |

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,353

Applicant(s)

YOSHIOKA ET AL.

Examiner

Karla Moore

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 09/493,104.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 6 is objected to because of the following informalities: It is identical to claim 2. Appropriate correction is required. Examiner assumes that claim was meant to depend from claim 5 and has examined the pending claims using this assumption.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,769,952 to Komino in view of U.S. Patent No. 5,334,251 to Nashimoto, U.S. Patent No. 6,048,435 to DeOrnellas et al., U.S. Patent No. 5,303,671 to Kondo et al. and Japanese Patent No. 60-183996 to Kameyama.
4. Komino discloses an apparatus for processing a specimen substantially as claimed (in claims 1 and 5) and comprising: an etching process unit (Figure 1, 10A-C; column 5, rows 48-59), which is supplied with a gas to produce plasma (column 12, rows 9-12); a rinsing unit (18A and 18C; column 6, rows 7-10); and a dryer unit (18B and 18D; column 5, rows 48-59) for drying. Komino further teaches that the operations in the etching process unit and the rinsing and/or drying unit can take place in succession (column 6, rows 10-20). Additionally, Komino discloses at least one transfer unit
5. Additionally, the apparatus of Komino may be constructed to comprise plural deposition units, which may be used continuously, along with the etching, rinsing and drying units (column 5, rows 48-51). This fairly suggests that the apparatus would be capable of processing a substrate with multiple layers.

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6. However, Komino fail to explicitly teach the apparatus capable of processing a specimen while controlling the temperature of the substrate.

7. Nashimoto teaches the use of a temperature control mechanism for semiconductor processing apparatus for the purpose accurately controlling the temperature of a substrate during processing because the results of processing may depend largely upon the temperature of the substrate being processed (column 1, rows 20-26; column 1, row 55 through column 2, rows 13 and column 5, row 56 through column 6, row 14).

8. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a temperature control mechanism in any of the types of substrate processing apparatus (etching, rinsing, drying) in Komino in order to accurately control the temperature of the substrate during processing because results of processing may depend largely upon the temperature of the substrate being processed as taught by Nashimoto.

9. In addition with respect to the invention of claim 1, Komino and Nashimoto further fail to specifically teach that the etching apparatus is capable of supplying a low pressure, high density, low ion energy plasma.

10. DeOrnellas et al. teach using a low pressure, high density, and low ion energy plasma for delivering superior etching results (column 4, rows 43-67).

11. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided an apparatus capable of plasma processing conditions such as low pressure, high density and low ion energy in Komino and Nashimoto in order to deliver superior etching results which are required for the latest semiconductor products as taught by DeOrnellas et al.

12. Komino, Nashimoto and DeOrnellas et al. disclose the invention substantially as claimed and as described above.

13. However, Komino, Nashimoto and DeOrnellas et al. fail to teach a rinsing cup in the rinsing unit and a hot plate in the drying unit.

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14. Kondo et al. teach the use of a hot plate for the purpose of heating/drying a specimen after washing (column 8, rows 28-30).

15. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a hot plate in the drying unit of Komino, Nashimoto and DeOrnellas in order to heat/dry a specimen after washing as taught by Kondo et al.

16. Kameyama teaches the use of a rinsing cup for the purpose of reducing the adhesion of dust, to use only a small amount of treating liquid and to equalize the extent of a treatment (purpose and constitution).

17. It would have been obvious to one of ordinary skill in the art at the time the Applicant's invention was made to have provided a rinsing cup in the rinsing unit of Komino, Nashimoto and DeOrnellas in order to reduce adhesion of dust, use only a small amount of treating liquid and to equalize the extent of treatment as taught by Kameyama.

18. Examiner notes that the specific temperature to which a process is controlled is a processing parameter that would depend on the type of processing, type of substrate and type of processing material being used. One of ordinary skill in the art would immediately recognize that, depending on the intended processing method, ideal-processing conditions would need to be established. Regarding the article to be worked upon and the specific composition of the layer on the substrate, the courts have ruled that the inclusion of material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in *In re Otto*, 312 F. 2d 937, 136 USPQ 458, 459 (CCPA 1963)). Also, regarding the processing materials, the courts have ruled that expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim. *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969). Further, with respect to the inclusion of these aforementioned method limitations (which include—said etching processing unit can perform in succession etching of the dried surface of the lamination layer...), the courts have ruled that the courts have ruled that a claim containing a "recitation

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with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

19. With respect to claims 2 and 6 (which are identical), the at least one transfer unit disclosed in Komino for transferring the specimen from the dryer to the etching process unit, comprises: an atmospheric loader (20); a vacuum transport chamber (14) having a vacuum transport robot (16) therein; and unload and loadlock chambers (130A and 130B) connecting between said atmospheric loader and said vacuum transport chamber for delivering the specimen via an atmospheric transport unit (22), wherein said vacuum transport chamber is connected to all of the etching process chambers of said etching process unit, and said atmospheric loader is connected via said atmospheric transport unit to said rinsing unit and drying unit.

20. With respect to claims 3-4 and 7-8, Komino teaches that any number of the three processing chambers, 10A-C, may be etching chambers (column 5, rows 48-59).

Response to Arguments

21. Applicant's arguments, filed 3 January 05, with respect to 1-8, have been fully considered and are not persuasive. Applicant's arguments rely solely on an intended use of the presently claimed apparatus that the prior art would be capable of performing. If it was desired to utilize a method in Komino that involved a substrate that is processed in the normal pressure treatment chambers as an intermediate step during processing in the reduced pressure treatment chambers, it would be capable of such a method and thus the reference is fairly applied. Examiner notes that while there does not appear to be explicit disclosure of a method such as the Applicant's intended method in Komino, there is also nothing that precludes utilization of such a method in Komino.

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Conclusion

22. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.



km
11 April 2005



Parviz Hassanzadeh
Supervisory Patent Examiner
Art Unit 1763